

Claims

What is claimed is:

1. A method of filling an ink-jet head of an ink-jet printing apparatus with a liquid stored in a tank, wherein a suction cap is brought into close contact with a nozzle opening surface of the ink-jet head with intervention of a gas-permeable filter and air within the suction cap is suctioned with a pump so as to fill the whole of the nozzle up to the tip thereof.
2. The method of filling an ink-jet head with a liquid claimed in Claim 1, wherein the gas-permeable filter allows a gas to pass through while it does not allow a liquid to pass through under a pressure below a certain level.
3. The method of filling an ink-jet head with a liquid claimed in Claim 2, wherein the gas-permeable filter is made of fine polytetrafluoroethylene fibers having a mean pore diameter of 1 to 3 μm .
4. The method of filling an ink-jet head with a liquid claimed in Claim 1, wherein the filling with the liquid is performed after the ink-jet head has been moved to a non-ejection region outside a printing region of the ink-jet printing apparatus.
5. The method of filling an ink-jet heads with liquids, using the method claimed in Claim 1, wherein the gas-permeable filter is brought into close contact with entire

nozzle opening surfaces of all nozzles of the ink-jet heads so as to cover all of them, and the air within the suction cap is suctioned.

6. An ink-jet printing apparatus including a tank for supplying a liquid to be ejected to an ink-jet head of the printing apparatus, comprising:

a suction means to be pressed against a nozzle opening surface so as to be brought into close contact with it, including a suction cap with a gas-permeable filter provided at the front surface thereof and a pump connected to the suction cap.

7. The ink-jet printing apparatus claimed in Claim 6, wherein the gas-permeable filter allows a gas to pass through, but not a liquid to pass through under a pressure below a certain level.

8. The ink-jet printing apparatus claimed in Claim 7, wherein the gas-permeable filter is made of fine polytetrafluoroethylene fibers having a mean pore diameter of 1 to 3 μm .

9. The ink-jet printing apparatus claimed in Claim 6, wherein a unit provided with the suction means, or the suction cap is capable of being raised or lowered in a non-ejection region outside a printing region.

10. The ink-jet printing apparatus claimed in Claim 6 wherein the gas-permeable filter is brought into close contact with entire nozzle opening surfaces of all nozzles of the ink-jet heads so as to cover all of them.

11. A method of filling an ejection head constituting an apparatus for manufacturing a micro-array by a ink-jet method, wherein the ejection head is filled with a liquid stored in a tank by using the method of filling an ink-jet head with a liquid claimed in Claim 1.

12. An apparatus for manufacturing a micro-array by an ink-jet method, which is an ink-jet printing apparatus claimed in Claim 6.

13. An apparatus for manufacturing a micro-array, comprising:

- a carriage being movable in at least one direction on a stand;
- a plurality of cartridges, each storing a liquid, including an ejection head provided at the tip thereof for ejecting the liquid by an ink-jet method, and being detachably mounted on the carriage;
- a table for mounting a micro-array substrate; and
- a suction means being mounted on the stand so as to be raised or lowered while the carriage is in the housing position;

wherein the suction means includes a suction cap connected to a pump, and a gas-permeable filter supported by the suction cap, to be brought into contact with the bottom face of the carriage.

14. The apparatus for manufacturing a micro-array claimed in Claim 13, wherein the gas-permeable filter is supported with intervention of a elastic sheet having a plurality of suction holes.
15. The apparatus for manufacturing a micro-array claimed in Claim 13, wherein the suction means is of unitary construction.
16. The apparatus for manufacturing a micro-array claimed in Claim 13, wherein the ejection head is a multi-reservoir head including a plurality of ejecting portions and a plurality of reservoir tanks.
17. The apparatus for manufacturing a micro-array claimed in Claim 13, wherein the table is movable in the direction perpendicular to the moving direction of the carriage.